APPENDIX I: AVCARB 1071 HCB TECHNICAL SPECIFICATIONS

Yarn Filament Properties:

Grade(s)	HC	HCB
Diameter *(microns)* :	7.5	7.5
Cross-section :	Round	Round
Density *(gm/cc)* :	1.72 – 1.75	1.75 – 1.77
Surface Area *(gm/M²)* :		0.62
Tensile Strength kN/cm² *(ksi)* :	210 *(300)*	192.5 *(275)*
Tensile Modulus mN/cm² *(msi)* :	21 *(30)*	26.6 *(38)*
Elongation @ Break *(%)* :	1.0	0.72
Electrical Resistivity *(ohm-cm)* :	Controllable	1.1×10^{-3}
Thermal Oxidative Stability : *(wgt. loss/hr @ 500°C in air)*	Oxidizes	<1.0
Carbon Content *(%)* :	88 – 95	99.5

Representative AvCarb™ Carbon Fabric Applications:

Fabric Designation	Application
1071 HCB	Gas Diffusion Layer (PEM Fuel Cells), Other Electrochemical Applications
1209 HC	Ablative Insulation (Solid Fuel Rocket Motors)
1209 HCB	High Temperature Furnace Hardware Reinforcement
1243 HCB	Friction (Motion Control)

Typical AvCarb™ Fabric Styles / Grades:

Fabric Style	1071	1209	1243	1500	1580
Grade(s) :	HCB	HCB*	HCB*	HCB*	HCB*
Weave Construction :	Plain	Plain	Plain	5 Harness Satin	8 Harness Satin
Weave Count :					
Warp – per cm	17.3 – 21.3	9 – 10.6	11 – 12.6	9.8 – 13.8	10.2 – 14.2
Fill – per cm	16.5 – 20.5	7.1 – 7.9	10.6 – 11.4	9.0 – 13.0	9.5 – 13.5
Basis Wt. – gm/m² :	105 – 125	270 – 330	200 – 240	319 – 387	340 – 404
Thickness – microns :	280 – 432	675 – 825	650 – 750	675 – 1040	675 – 1040
Width – cm :	117	117	107	117	117
Availability :	Inventory	Inventory	Inventory	Special Order	Special Order

* Also available in HC grade

(available at http://www.ballard.com/resources/carbon_fiber/BMP_AVCARB_FABRICS_10.04.pdf*)*